

**\*USAF Declass/Release Instructions On File\***

03 MAY 61 0541Z

**SECRET**

*comms*

*DB*

DIRECTOR

25X1A

DPD (1-2-3-4-5-6-7-8-9-10)

ROUTINE

S/C (11)

MHC

TOR: 03 MAY 61 0738Z

*RISH*

IN 06934

25X1A

25X1A 1472

25X1A

TACKLE OPS

1. ALTERNATOR FAILED ON ELINT TEST MISSION [REDACTED] 25X1A  
SWITCH WAS TURNED ON WHEN ENGINE POWER REACHED 87 PERCENT.  
THE ALTERNATOR FAILED WITHIN FIVE MINUTES.

2. AFTER REVIEWING SOME OF THE PAST HISTORY OF ALTERNATOR  
FAILURES WITH THIS ENGINE BELIEVE MODIFICATION OF SYSTEM POSSIBLY  
SHOULD BE CONSIDERED.

3. SUGGEST POSSIBLE CONVERSION FROM ENGINE DRIVEN ALTERNATOR  
TO THE USE OF AN INVERTER. IN ADDITION TO A MORE RELIABLE AC  
SYSTEM FOR ELINT OPERATION, SECOND INVERTER COULD BE USED FOR  
BACK UP INSTRUMENT POWER IN THE EVENT OF MAIN INVERTER FAILURE.

25X1A 4. AFTER CONSULTING WITH [REDACTED] BELIEVE ADEQUATE DC POWER  
IS AVAILABLE TO SUPPORT INVERTER POWER TO OPERATE ELINT SYSTEMS.

END OF MESSAGE

DOCUMENT NO. \_\_\_\_\_  
NO CHANGE IN CLASS. ( )  
( ) DECLASSIFIED  
CLASS. CHANGED TO: TS S *020*  
NEXT REVIEW DATE: \_\_\_\_\_  
AUTH: HR 70-2  
DATE: *2/11/81* REVIEWER: 037169

**SECRET**

S E C R E T

25X1A

0961 (IN 09738)

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OF A FREQUENCY REDUCTION AT REDUCED ENGINE SPEEDS FOR LONG RANGE MISSIONS. THE FREQUENCY RANGE IS 420 CPS AT T.O. TO 350 CPS AT 70,000 FEET AFTER SEVEN AND ONE HALF HOURS, WHEN USING CRUISE PROFILES AS OUTLINED IN THE FLIGHT HANDBOOK. ALTERNATE CRUISE PROFILE IS CONTAINED IN REF MSG.

83.25% max  
RPM at Cruise

THE SUPPLIERS OF SYSTEMS III, VI, IV, VII, WERE CONTACTED AS TO THE EFFECTS OF OPERATING THE SYSTEMS AT 350 CPS.

#### SYSTEM III AND VI

OVERHEATING OF TRANSFORMERS IS THE CRITICAL ITEM AT 350 CPS. [REDACTED] INFORMS US THAT TRANSFORMERS CAPABLE OF OPERATING WITHIN THE RANGE OF 420-350 CPS ARE AVAILABLE AND CAPABLE OF BEING INSTALLED IN SYSTEMS III AND VI. THESE TRANSFORMERS CAN BE SHIPPED TO DETACHMENTS IN SIX WEEKS. ONE TRANSFORMER REQUIRED IN SYSTEM III AND FOUR TRANSFORMERS REQUIRED IN SYSTEM VI. THESE NEW TRANSFORMERS ARE SLIGHTLY HEAVIER THAN THE ORIGINAL. THE WEIGHT INCREASE IS APPROX FOUR POUNDS.

#### SYSTEM VII

[REDACTED] STATE THAT THERE IS NO PROBLEM OPERATING THIS SYSTEM AT 350 CPS. THE SYSTEM HAS OPERATED AT LOWER FREQUENCIES THAN 350 CPS, BUT THEY FELT THAT 350 CPS WAS THE LOWEST FREQUENCY THAT THEY WOULD GUARANTEE.

AMPEX [REDACTED] took require + 5%  
300 → 800 cycles

#### SYSTEM IV

query amplex on 814 and blowers on 350 cycles

THE COOLING BLOWERS IN THIS SYSTEM ARE CRITICAL AT REDUCED FREQUENCIES. NO INFO IS AVAILABLE AS TO THE EFFECT OF LOW FREQUENCIES, HOWEVER, [REDACTED] INTEND TO TEST THIS SYSTEM AT 350 CPS TO DETERMINE THE EFFECT AT THE LOWER FREQUENCY, AND TO

25X1A

25X1A

Approved For Release 2001/09/05 : CIA-RDP81B00880R000100220001-8

S E C R E T

0961 (IN 09738)

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TAKE ANY CORRECTIVE ACTION NECESSARY TO INSURE PROPER OPERATION.

IT IS OUR UNDERSTANDING THAT [REDACTED] HAS REQUESTED THESE TESTS NOT BE CONDUCTED UNTIL ALFA LATER DATE. THE SYSTEM AS OUTLINED IN PARA 3 ABOVE WILL ADD APPROX 40 POUNDS, INCLUDING ALTERNATOR, TO THE BASIC AIRPLANE, OR 35 POUNDS LESS THAN THE EXISTING HYDRAULIC DRIVEN ALTERNATOR SYSTEM. DUE TO THE LIGHTNESS AND SIMPLICITY OF THE SYSTEM OUTLINED ABOVE IN PARA 3, WE REQUEST APPROVAL OF THIS SYSTEM AS A PERMANENT INSTALLATION. REQUEST THAT [REDACTED] PERMIT BLOWER TESTS ON SYSTEM IV TO PROCEED. 25X1A

END OF MESSAGE

25X1A

1716Z 16 OCT 59

SECRET

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C/D BOPS  
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25X1A

DIRECTOR

DPD (1,2,3,4,5,6,7,8,9,10)

S/C (11)

GG

TOR: 1855Z 16 OCT 59

25X1A

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ATTN: [REDACTED]

1. REF TYPE OF U2C MISSION REQUIRED TO MAINTAIN A MINIMUM A.C. POWER FREQUENCY OF 380 CYCLES. FOR INSTANCE ON THE LEVEL AT 70,000 FT MISSION, THE POWER WOULD BE REDUCED TO HOLD 70,000 FT FOR APPROX 2 HOURS. AT THIS TIME ENGINE SPEED WOULD BE HELD CONSTANT TO INSURE CONSTANT ALTERNATOR FREQUENCY. THE AIRCRAFT WOULD THEN SLOWLY GAIN ALTITUDE AS FUEL WAS BURNED. THE RESULT OF THIS PROCEDURE WOULD REDUCE THE ENDURANCE BY 15 MIN. THAT IS, FROM 9 HRS TO 8 HRS 45 MIN.

2. THE DIRECT DRIVEN ALTERNATOR HAS AN ADJUSTABLE VOLTAGE RANGE OF 115 VOLTS TO 125 VOLTS. IT IS NORMALLY SET AT 115 VOLTS, 3 PHASE.

END OF MESSAGE

DOCUMENT TWO  
FOUO (S) 10/1/81  
1. DECLASSIFIED  
CLASS. CHANGED TO: TS S @ 2011  
NEXT REVIEW DATE: \_\_\_\_\_  
AUTH. HR 70-2  
DATE 2/11/91 REVIEWER: 037169

SECRET

2059Z 15 OCT 59

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DIRECTOR

25X1A

DPD (1,2,3,4,5,6,7,8,9, 10)

S/C (11)

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TOR: 2059Z 15 OCT 59

25X1A

ROUTINE

IN 09445

25X1A

0814

OPERA

25X1A

REF 3244 (OUT 53247)

1. SUGGEST THE USE OF A TRANSISTOR AIRBORNE INVERTER MAY BE A SOLUTION TO OUR A.C. GENERATOR PROBLEMS.

2. SUCH A DEVICE IS ADVERTISED IN THE JULY 31, 1959 ISSUE OF "ELECTRONICS", PAGE 123. THIS PARTICULAR UNIT ONLY RATED FOR 2 KVA OUTPUT, BUT IT IS NOTED THERE ARE OTHER MODELS AVAILABLE. PLEASE NOTE EXCEPTIONAL CLAIMS FOR FREQUENCY STABILITY.

END OF MESSAGE

DOCUMENT NO. \_\_\_\_\_  
NO CHANGE IN CLASS. ☐  
DECLASSIFIED  
CLASS. CHANGED TO: TS S 02071  
NEXT REVIEW DATE: \_\_\_\_\_  
AUTH: HR 70-2  
DATE: 2/11/81 REVIEWER: 037169

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